## IN THE CLAIMS

What is claimed is:

A coated low density polymeric foam comprising:
a low density polymeric foam substrate having a coating, the coating

comprising a prepolymer, a monomer, a catalyst and a graft initiator.

- 2. The coated low density polymeric foam of claim 1, where in the low density polymeric foam substrate has a density of up to about 10 lbs/ft.3
- 3. The coated polymeric foam of claim 1, wherein the low density polymeric foam is formed from the group consisting of polyvinyl chloride, acrylo nitrile butadiene rubber, styrene butadione rubber, ethylene-propylene-diene rubber, polychloroprene, polyethylene, polypropylene, co-polymers of ethylene, co-polymers of propylene and combinations thereof.
- 4. The coated low density polymeric foam of claim 1, further comprising a flexidizing agent.
- 5. The coated low density polymeric foam of claim 4, wherein the flexidizing agent comprises a latex.

- 6. The coated low density polymeric foam of claim 1, wherein the graft initiator is selected from the group consisting of ferric ions, silver oxide and silver particles.
- 7. The coated low density polymeric foam of claim 1, wherein the graft initiator is selected from the group consisting of ferrous ammonium sulfate and silver nitrate.
- 8. The coated low density polymeric foam of claim 1, further including a redox catalyst.
- 9. The coated low density polymeric foam of claim 1, wherein the catalyst comprises a peroxide.
- 10. The coated low density polymeric foam of claim 1, further comprising a UV inhibitor.
- 11. The coated low density polymeric foam of claim 1, wherein the monomer is a urethane acrylate.
- 12. The coated low density polymeric foam of claim 1, wherein the coating is water based.

- 13. The coated low density polymeric foam of claim 1, wherein the prepolymer comprises a urethane.
- 14. The coated low density polymeric foam of claim 1, wherein the coating has a thickness of between about 10 microns and about 500 microns.
- 15. A method for manufacturing a coated polymeric low density foam comprising:

providing a polymeric low density foam substrate;

mixing together a prepolymer, a monomer, a catalyst, a graft initiator and water to form a coating; and

applying the coating to the low density foam substrate.

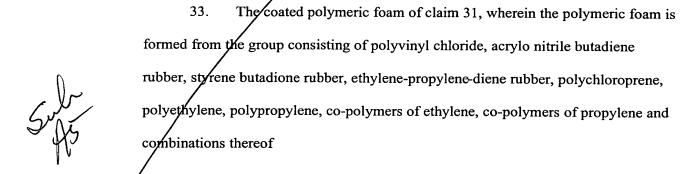
- 16. The method of claim 15, further including curing the coating on the low density polymeric foam at ambient temperatures.
- 17. The method of claim 15, further including curing the coating on the low density polymeric foam at elevated temperatures.
- 18. The method of claim 15, wherein the step of applying the coating is selected from the group consisting of spraying, dipping, rolling and sponging the coating onto the substrate.

- 19. The method of claim 15, where in the low density polymeric foam substrate has a density of up to about 10 lbs/ft.<sup>3</sup>
- 20. The method of claim 15, wherein the low density polymeric foam is formed from the group consisting of polyvinyl chloride, acrylo nitrile butadiene rubber, styrene butadione rubber, ethylene-propylene-diene rubber, polychloroprene, polyethylene, polypropylene, co-polymers of ethylene, co-polymers of propylene and combinations thereof.
- 21. The method of claim 15, further comprising adding a flexidizing agent to the coating.
- 22. The method of claim 21, wherein the flexidizing agent comprises a latex.
- 23. The method of claim 15, wherein the graft initiator is selected from the group consisting of ferric ions, silver oxide and silver particles.
- 24. The method of claim 15, wherein the graft initiator is selected from the group consisting of ferrous ammonium sulfate and silver nitrate.
- 25. The method of claim 15, further including adding a redox catalyst to the coating.

- 26. The method of claim 15, wherein the catalyst comprises a peroxide.
- 27. The method of claim 15, further including adding a UV inhibitor to the coating.
  - 28. The method of claim 15, wherein the monomer is a urethane acrylate.
  - 29. The method of claim 15, wherein the prepolymer is water dispersible.
  - 30. The method of claim 15, wherein the prepolymer comprises a urethane.
  - 31. A coated polymeric foam comprising:

a polymeric foam substrate having a coating, the coating comprising a water dispersible prepolymer, a monomer, a catalyst and a graft initiator.

32. The coated polymeric foam of claim 31, where in the polymeric foam substrate has a density of up to about 10 lbs/ft.<sup>3</sup>



34. The coated polymeric foam of claim 31, further comprising a flexidizing agent.

35. The coated polymeric foam of claim 31, wherein the graft initiator is selected from the group consisting of ferrous ammonium sulfate and silver nitrate

- 36. The coated polymeric foam of claim 31, wherein the catalyst comprises a peroxide.
- 37. The coated polymeric foam of claim 31, further comprising a UV inhibitor.
- 38. The coated polymeric foam of claim 31, wherein the monomer is a urethane acrylate.
- 39. The coated polymeric foam of claim 31, wherein the prepolymer comprises a urethane.

ses a urethane.

40. A method for manufacturing a coated polymeric foam comprising: providing a polymeric foam substrate;

mixing together a water dispersible prepolymer, a monomer, a catalyst, a graft initiator and water to form a coating; and applying the coating to the low density foam substrate.

- 41. The method of claim 40, further including curing the coating on the polymeric foam at ambient conditions.
- 42. The method of claim 40, further including curing the coating on the polymeric foam at elevated temperatures.
- 43. The method of claim 40, wherein the step of applying the coating is selected from the group consisting of spraying, dipping, rolling and sponging the coating onto the substrate.
- 44. The method of claim 40, wherein the polymeric foam substrate has a density of up to about 10 lbs/ft.<sup>3</sup>